Transforming Citrus Harvesting with Abscission and Mechanization

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Who is AgroSource?

• Is the global leader in abscission technologies used for mechanical harvesting
• Manufactures FireWall™ and FireLine™ for control of bacterial diseases
• For further information about AgroSource’s other agricultural products and business activities, visit us at agrosource.net
Becoming More Competitive

- Mechanical harvesting can reduce citrus harvest costs
- Mechanical harvesting is not new
  - But is not fully utilized by the FL citrus industry
- Abscission technology will allow expansion of mechanical harvested citrus acres
- FL citrus industry can remain competitive

![Grower Costs Chart]

Source: Muraro, R. Summary of 2010-2011 Citrus Budget for the Southwest Florida Production Region and Estimated Average Picking, Roadsiding and Hauling Charges for Florida Citrus, 2010-11 Season
Mechanical Harvesting Examples

- Sugarcane
- Olives
- Citrus
Sugarcane Industry
Florida Sugarcane Industry

Percent of Crop Mechanically Harvested


Increased manual harvesting costs

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Florida Sugarcane Industry

- Mechanical harvesting is 100% of all commercially grown sugarcane
- Machine and field design is complementary
- Mechanical harvesting has expanded to other countries including Australia, Brazil, South Africa, Taiwan, and Thailand
Olive Industry
Australian Olive Industry

• Mechanical harvesting is near 100% in areas suitable for this technology
• Machine and grove design are complementary
• Mechanical harvesting and intensive plantings now in Argentina, Chile, Morocco, Peru, Portugal, South Africa, Spain, USA
Citrus Industry
Mechanically harvested acres—Percent of Crop

Source: Florida Department of Citrus
Obstacles to Adoption

- Late season Valencia
- Tree damage
- Cost of machinery
- Machinery design
- Load debris
- Abscission technology is the answer
Abscission...How Does it Work?

• Loosens mature fruit, thus reducing force needed to harvest
• Maintains next seasons’ Valencia crop
• Reduces damage to both trees and machinery
• Reduces debris in loads
Abscission Improves Manual Harvesting, too

- Evaluating the use of abscission with manual harvesting
- Initial information shows benefit
  - Improves harvesting efficiency
  - Decreases harvester fatigue
  - Additional trials are scheduled to improve understanding
Harvest Cost Savings with Abscission @ 325 box/acre

% Reduction in Harvest Cost

% Increase Fruit Recovery with Abscission

Est. Cost Savings: $100 - $200/A

Harvest Cost Savings with Abscission @ 400 box/acre

% Reduction in Harvest Cost

% Increase Fruit Recovery with Abscission

Est. Cost Savings: $215 - $330/A

Can this work in my grove?

• Yes!
  – Mechanical harvesting has been used successfully in flatwoods and ridge groves
  – Abscission will overcome the major challenges
  – This will facilitate expansion to any grove
Where are We Going?

- Mechanical harvesting
  - Over the top
- Abscission
- Grove design
  - Advanced Citrus Production System
- Tree architecture
  - Dwarfing rootstocks

8x15 feet = 363 trees/acre

Photo Source: University of Florida.

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Abscission is the Key

- Overcomes primary hurdles to mechanical harvesting adoption
  - Allows late Valencia season harvest
  - Increases efficiencies throughout early-mid and late seasons
- Critical component of the transformation
- Addresses labor availability
- Significantly reduces harvesting cost
Registration Status

- CMNP Section 3 Registration and Tolerance
- Submitted January 2011
- EPA actively reviewing submission package
Benefits

• Large-scale adoption of abscission technology can reduce harvest costs

• Reduced harvest costs can help Florida citrus remain competitive in world beverage market

• AgroSource will provide the Florida citrus industry a unique and cost-effective tool for mechanical harvesting
  – Volumes critical to pricing
How do we get there?

• Comprehensive systems approach
  – Tree architecture
  – Grove design
  – Equipment
  – Abscission
Thanks!

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